Natural Products: Biochemical-Chemical Characterization, and Evidence for Therapeutic Potential

Basil D Roufogalis[1], Srinivas Nammi[2,3], Emanuel E. Strehler[4]

[1] Discipline of Pharmacology, School of Medical Sciences, Sydney Medical School, University of Sydney, Australia. [2] School of Science and Health, and [3] National Institute of Complementary Medicine (NICM), Western Sydney University, Australia. [4] Mayo Clinic College of Medicine, Rochester, USA.

INTRODUCTION

This Special Issue follows from a previous Issue entitled **"Mechanism-Based Development of Natural Products for Human Health"** arising from an inaugural conference on Natural Products Development held at Whistler Mountain, Canada from September 21-22, 2012. The timeliness of this issue reflects the continued growth in Natural Product research and the success of the First Issue, as judged from feedback we received and citations received. We were also encouraged by the interest in natural products research in recent years, as exemplified by the recent publication on Traditional Medicine in the prestigious journal Science (1, 2).

We trust that this Special Issue on "**Natural Products: Biochemical-Chemical Characterization, and Evidence for Therapeutic Potential**" will meet a growing demand for greater information and quality research on various aspects of natural products and their traditional use.

As noted in the Introduction to the Special issue in 2013 (3) the concept for a Special Issue has come from the continued interest in traditional and natural medicinal health products in developed countries in recent years. It has been difficult for the mainstream pharmaceutical industry to maintain a cost-effective pipeline of new products with acceptable safety profiles for addressing the rising epidemic of chronic diseases. While requesting access to products providing health and wellbeing benefits, the community and the medical profession demand greater research on safety and efficacy of natural products with traditional use. As traditional natural product medicines enter the mainstream more and more, so is the call for evidence to support the underlying basis of action of such products.

An essential part of the integration of natural medicines in the mainstream is an understanding of their mechanism of action and their analysis and identification of biological targets. This is a focus of the current Special Issue. Evidence to support the chemical composition, mechanistic basis of action and efficacy of traditional medicines is becoming increasingly necessary. This Special Issue encourages papers addressing the characterization of natural medicines chemically and biochemically, with an emphasis on their mechanism of action and the evidence for their safety, drug interactions, efficacy, reproducibility and potential therapeutic value. The underpinning studies involve application of a number of disciplines, including pharmacognosy, pharmacology, phytochemistry, analytical chemistry, cell and molecular biology and clinical studies. Articles range from reports on attempts to work with traditional owners to develop new therapeutic opportunities and scientific understanding based on traditional knowledge, analysis of the nature of the active chemical components found in natural products, development of new formulations based on pharmacokinetics, estimation of safety of natural products and their interactions with other treatments and studies on the mechanism of action of medicinal agents in cancer and chronic inflammatory diseases such as diabetes and metabolic disease.

We are indebted to those scientists who have willingly given of their time and resources to submit manuscripts for inclusion in this Special Issue and those who undertook the peer review of those articles.

A successful Special issue is not possible without the work of many. We thank the JPPS Editor, Professor Fakhreddin Jamali and his staff for their considerable expertise and support in the editorial process. The Guest-Editors thank the National Health Products Research Society of Canada and the Canadian Society for Pharmaceutical Sciences for their support of the concept of this Special Issue and for encouragement of their members to submit articles.

Corresponding Author: Professor Emeritus Basil D Roufogalis, Discipline of Pharmacology, School of Medical Sciences, Sydney Medical School, University of Sydney, Australia; Email: Basil.roufogalis@sydney.edu.au

REFERENCES

1. The Art and Science of Traditional Medicine. Part I:(TCM Today - A Case for Integration. Science 2014; 346: S1-S25.
2. The Art and Science of Traditional Medicine. Part II:Multidisciplinary Approaches for Studying Traditional Medicine. Science 2014; 347: S26-S51
3. Basil D Roufogalis , Arthur D Conigrave , Emanuel E Strehler. Introduction- mechanism-based development of natural products for human health. J Pharmac, Pharmaceut. Sci, 2013; 16: 123-124